Trends in biotech literature 2006

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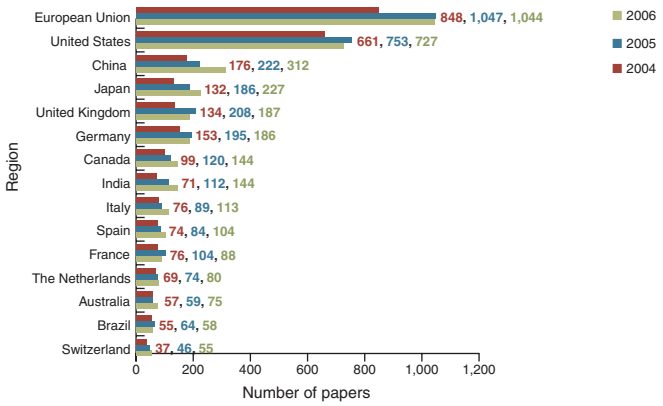
Unsurprisingly, microRNAs dominate the list of highest cited papers, and the area is witnessing rapid growth. The number of papers in other fields, such as proteomics, nanotech and RNA interference, also continues to expand; 80% of the publications specifically reporting cancer stem cells were published in the past two years. China and India continue to increase their output of biotech papers; France fell behind Spain and Italy; Switzerland entered the top 15 for the first time.

Number of biotech journal articles by region

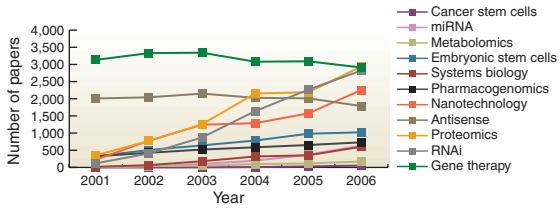
Last year, Japan leap-frogged Germany and the UK, France fell behind Spain and Italy, China and India continued to grow and Switzerland entered the top 15.



Based on search for papers containing "biotechnology" in abstract. Source: National Center for Biotechnology Information's PubMed

Historical trends in biotech fields

Papers on proteomics and nanotech continued rapid growth in numbers; those on microRNA and cancer stem cells nearly doubled.



Obtained using fields (e.g., "proteomics") as search term in published papers. Source: National Center for Biotechnology Information's PubMed; BioPharm Reports

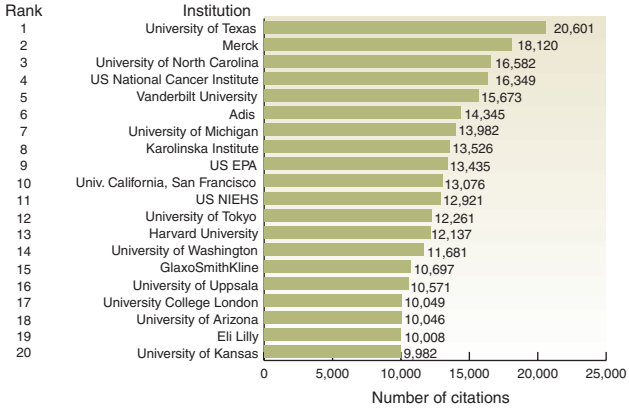
Biotech journal impact

Primary research journal	Impact factor	Review journal	Impact factor
Briefings in Bioinformatics	24.4	*Annual Review of Pharmacology*	22.8
Nature Biotechnology	22.7	*Nature Reviews Drug Discovery*	21.0
Nature Chemical Biology	12.4	*Pharmacological Reviews*	16.9
Genome Research	10.3	*Annual Review of Biomedical Engineering*	10.5
Proceedings of the National Academy of Sciences USA	9.6		
Molecular and Cellular Proteomics	9.6		
Clinical Pharmacology & Therapeutics	8.1		
Stem Cells	7.9		
Molecular Systems Biology	7.4		

Source: ISI categories Biotechnology & Applied Microbiology; Engineering, Biomedical

Most cited institutions in pharmacology and toxicology

From 1996 to 2006, of the three big pharma firms publishing extensively, Merck published the most papers.



Source: In-Cites, Essential Science Indicators

Top cited paper by field

Field	Author	Title	Citation	Times cited
RNAi	Lim, L.P. *et al.*	Microarray analysis shows that some microRNAs downregulate large numbers of target mRNAs	*Nature* **433**, 769–773 (2005)	313
Diagnostics	Lu, J. *et al.*	MicroRNA expression profiles classify human cancers	*Nature* **435**, 834–838 (2005)	252
Vaccinology	Lindenbach, B.D. *et al.*	Complete replication of hepatitis C virus in cell culture	*Science* **309**, 623–626 (2005)	209
Embryonic stem cells	Boyer, L.A. *et al.*	Core transcriptional regulatory circuitry in human embryonic stem cells	*Cell* **122**, 947–956 (2005)	173
Assays	Fabian, M.A. *et al.*	A small molecule-kinase interaction map for clinical kinase inhibitors	*Nature Biotechnology* **23**, 329–336 (2005)	153
Proteomics	Anderson, N.L. *et al.*	Nucleolar proteome dynamics	*Nature* **433**, 77–83 (2005)	145
Imaging	Lidke, D.S. *et al.*	Sub-diffraction-limited optical imaging with a silver superlens	*Science* **308**, 534–537 (2005)	141
Computational biology	Tompa, M. *et al.*	Assessing computational tools for the discovery of transcription factor binding sites	*Nature Biotechnology* **23**, 137–304 (2005)	124
Gene therapy	Tuszynski, M.H. *et al.*	A phase 1 clinical trial of nerve growth factor gene therapy for Alzheimer disease	*Nature Medicine* **11**, 551–555 (2005)	83
Nanobiotech	Patolsky, F. *et al.*	Immunotargeted nanoshells for integrated cancer imaging and therapy	*Nano Letters* **5**, 709–711 (2005)	81
Environmental biotech	Goldman, E.R. *et al.*	A hybrid quantum dot-antibody fragment fluorescence resonance energy transfer-based TNT sensor	*Journal of the American Chemical Society* **18**, 6744–6751 (2005)	58
Plant biotech	Tohge, T. *et al.*	Functional genomics by integrated analysis of metabolome and transcriptome of *Arabidopsis* plants over-expressing an MYB transcription factor	*Plant Journal* **2**, 218–235 (2005)	56

Source: ISI Web of Science

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